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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,014	05/31/2001	Francis Briand	S 5405 US-OP/MM	8422

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EXAMINER	
MCHENRY, KEVIN L	

ART UNIT	PAPER NUMBER
1725	

DATE MAILED: 07/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application N .	Applicant(s)	
	09/870,014	BRIAND ET AL.	
	Examiner	Art Unit	
	Kevin L McHenry	1725	

-- The MAILING DATE f this c mmunication appears on the c ver sheet with the corresp ndence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 May 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,7-9,15,16 and 18-28* is/are pending in the application.

4a) Of the above claim(s) *26-28* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,7-9,15,16 and 18-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1,2,7-9,15,16 and 18-28* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 May 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Election/Restrictions

1. Newly submitted claims 26-28 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: newly submitted claims 26-28, which are drawn to a gas composition, can be used with a different method of use, such as metal casting, metal refining, or propelling solids or liquids.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 26-28 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 2, 7-9, 15, 22, 23, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamasaki (U.S.P. 4,507,540) in view of Steen (U.S.P. 4,167,662) and Yenni et al. (U.S.P. 2,753,427), Cherne et al. (U.S.P. 4,871,898), or Galantino et al. (U.S.P. 4,749,841).

Hamasaki teaches a process for welding metal workpieces, such as steels or

stainless steels, by producing a welded joint between the edges of the workpieces in which the welded joint is produced by using a laser beam and an electric arc. The arc has a plasma stream and is produced by a MIG welding device. During the welding operation at least a part of the welding zone and joint is shielded by a gas mixture of argon and helium (see U.S.P. 4,507,540; particularly Figure 3; column 1, lines 7-18, 34-36; column 2, lines 20-50; column 3, lines 48-51)

Hamasaki does not teach the addition of other gases to the argon/helium mixture, compositions of such mixtures, or that TIG electrodes can be used in the hybrid process.

Steen teaches a hybrid welding process in which TIG or MIG electrodes can be used (see U.S.P. 4,167,662; particularly column 4, lines 63-66).

Yenni et al. teach a gas-shield metal arc welding process in which a shielding gas with a composition of 40-80% helium, 3-5% carbon dioxide, and balance argon is used to produce a quiet, spatter-free arc that deposits a satisfactory weld bead (see U.S.P. 2,753,427; particularly column 1, lines 15-20, 36-46).

Cherne et al. teach a gas metal arc welding process in which a shielding gas with a composition of 2-12% carbon dioxide, 20-45% helium, and balance argon is used to provide an improved process that effectively welds carbon and low alloy steels with greater efficiency and lower cost (see U.S.P. 4,871,898; particularly column 1, lines 58-62; column 2, lines 1-15).

Galantino et al. teach an arc welding method that uses a shielding gas composition of 14-25% helium, 1-4% carbon dioxide, and balance argon to substantially reduce energy input, enhance metal deposition rates, and avoid significant alloy loss due

to oxidation or evaporation during welding of stainless steels, low alloy steels, and nickel based alloys (see U.S.P. 4,749,841; particularly column 2, lines 10-33; column 3, lines 15-25).

It would have been obvious to one of ordinary skill in the art to made the electrode taught by the process described above a TIG electrode, as taught by Steen, as opposed to a MIG electrode, as taught by Hamasaki, because of the art recognized functional equivalence of MIG and TIG electrodes (i.e. both are suitable electrodes for a hybrid welding process). It would have been obvious to modify the process of Hamasaki by the teachings of Yenni et al. in order to produce a quiet, spatter-free arc that deposits a satisfactory weld bead, as taught by Yenni et al. It would have been obvious to modify the process of Hamasaki by the teachings of Cherne et al. in order to provide an improved process that effectively welds carbon and low alloy steels with greater efficiency and lower cost, as taught by Cherne et al. It would have been obvious to modify the process of Hamasaki by the teachings of Galantino et al. in order to substantially reduce energy input, enhance metal deposition rates, and avoid significant alloy loss due to oxidation or evaporation during welding of stainless steels, low alloy steels, and nickel based alloys, as taught by Galantino et al.

4. Claims 16, 18, 19, and 21 rejected under 35 U.S.C. 103(a) as being unpatentable over Hamasaki (U.S.P. 4,507,540) in view of Steen (U.S.P. 4,167,662) and Yenni et al. (U.S.P. 2,753,427), Cherne et al. (U.S.P. 4,871,898), or Galantino et al. (U.S.P. 4,749,841) as applied to claims 1, 2, 7-9, 15, 22, 23, and 25 above, and further in view of Beyer et al. (U.S.P. 5,821,493).

The former references teach the process described above in section 3. However, these references do not teach that the arc creates a plasma, that the welded joint is a vehicle body element, that workpieces can have different thicknesses, or that the operation forms a tube.

Beyer et al. teach a hybrid laser and arc process that is used to make tubes and components for vehicle bodies. The arc of the process forms a plasma and uses a TIG type electrode. Beyer et al. also teaches that the workpieces can be of different thickness and that this process allows the elimination of preparation and positioning steps (see U.S.P. 5,821,493; particularly column 1, lines 13-17, 21-65).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made that the process described above could be used to weld workpieces of different thickness, make tubing, and produce components for vehicle bodies. One would have been motivated to use this process for such operations in light of the teachings of Beyer et al. that such a hybrid process would allow the elimination of preparation and positioning steps.

5. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamasaki (U.S.P. 4,507,540) in view of Steen (U.S.P. 4,167,662) and Yenni et al. (U.S.P. 2,753,427), Cherne et al. (U.S.P. 4,871,898), or Galantino et al. (U.S.P. 4,749,841) as applied to claims 1, 2, 7-9, 15, 22, 23, and 25 above, and further in view of Cook (U.S.P. 2,790,656).

The former references teach the process as described above in section 3.

However, these references do not teach that the process can be used to weld dissimilar metals.

Cook teaches a process of welding dissimilar metals to provide a strong joint by using a gas metal arc welding process with a consumable or non-consumable electrode (see U.S.P. 2,790,656; particularly column 1, lines 15-23; column 2, lines 38-43; column 3, lines 3-5; column 4, lines 42-47).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the process described above by the teachings of Cook. One would have been motivated to do so in order to use the process to weld dissimilar metals and provide a strong joint between them, as Cook teaches.

6. Claims 1, 2, 7-9, 15, 22, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamasaki (U.S.P. 4,507,540) in view of Steen (U.S.P. 4,167,662) and Galantino (U.S.P. 4,902,866).

Hamasaki teaches a process for welding metal workpieces, such as steels or stainless steels, by producing a welded joint between the edges of the workpieces in which the welded joint is produced by using a laser beam and an electric arc. The arc has a plasma stream and is produced by a MIG welding device. During the welding operation at least a part of the welding zone and joint is shielded by a gas mixture of argon and helium (see U.S.P. 4,507,540; particularly Figure 3; column 1, lines 7-18, 34-36; column 2, lines 20-50; column 3, lines 48-51)

Hamasaki does not teach the addition of other gases to the argon/helium mixture, compositions of such mixtures, or that TIG electrodes can be used in the hybrid process.

Steen teaches a hybrid welding process in which TIG or MIG electrodes can be used (see U.S.P. 4,167,662; particularly column 4, lines 63-66).

Galantino teaches a gas metal arc welding process that uses a shielding gas composition of 69-81% argon, 20-29% helium, and 1-4% oxygen that is suitable for welding stainless steels and low alloy steels and for pulse spray transfer (see U.S.P. 4,902,866; particularly column 1, lines 5-8; column 4, lines 65-68; column 5, lines 1-2).

It would have been obvious to one of ordinary skill in the art to made the electrode taught by the process described above a TIG electrode, as taught by Steen, as opposed to a MIG electrode, as taught by Hamasaki, because of the art recognized functional equivalence of MIG and TIG electrodes (i.e. both are suitable electrodes for a hybrid welding process). It would have been obvious to modify the process of Hamasaki by the teachings of Galantino in order to provide a shielding gas that is suitable for welding stainless steels and low alloy steels and for pulse spray transfer, as taught by Galantino.

7. Claims 16, 18, 19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamasaki (U.S.P. 4,507,540) in view of Steen (U.S.P. 4,167,662) and Galantino (U.S.P. 4,902,866) as applied to claims 1, 2, 7-9, 15, 22, and 24 above, and further in view of Beyer et al. (U.S.P. 5,821,493).

The former references teach the process described above in section 6. However,

these references do not teach that the arc creates a plasma, that the welded joint is a vehicle body element, that workpieces can have different thicknesses, or that the operation forms a tube.

Beyer et al. teach a hybrid laser and arc process that is used to make tubes and components for vehicle bodies. The arc of the process forms a plasma and uses a TIG type electrode. Beyer et al. also teaches that the workpieces can be of different thickness and that this process allows the elimination of preparation and positioning steps (see U.S.P. 5,821,493; particularly column 1, lines 13-17, 21-65).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made that the process described above could be used to weld workpieces of different thickness, make tubing, and produce components for vehicle bodies. One would have been motivated to use this process for such operations in light of the teachings of Beyer et al. that such a hybrid process would allow the elimination of preparation and positioning steps.

8. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamasaki (U.S.P. 4,507,540) in view of Steen (U.S.P. 4,167,662) and Galantino (U.S.P. 4,902,866) as applied to claims 1, 2, 7-9, 15, 22, and 24 above, and further in view of Cook (U.S.P. 2,790,656).

The former references teach the process as described above in section 6. However, these references do not teach that the process can be used to weld dissimilar metals.

Cook teaches a process of welding dissimilar metals to provide a strong joint by using a gas metal arc welding process with a consumable or non-consumable electrode (see U.S.P. 2,790,656; particularly column 1, lines 15-23; column 2, lines 38-43; column 3, lines 3-5; column 4, lines 42-47).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the process described above by the teachings of Cook. One would have been motivated to do so in order to use the process to weld dissimilar metals and provide a strong joint between them, as Cook teaches.

Response to Amendment

9. Upon carefully reviewing applicant's amendment filed 1 May 2003, the examiner acknowledges the cancellation of claims 3-6 and 10-14, and the amendments to claims 1, 2, 7-9, and the addition of claims 22-25.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Harvey et al. (U.S.P. 5,313,039), Evans et al. (U.S.P. 4,973,822), Demers et al. (U.S.P. 6,274,838), and Hoback et al. (U.S.P. 5,083,002) are cited of interest for illustrating the state of the art in welding shield gas compositions.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Response to Arguments

12. Applicant's arguments with respect to claims 1, 2, 7-9, 15, 16, and 18-25 have been considered but are moot in view of the new ground(s) of rejection that has been made in response the applicant's amendments. The examiner notes that the rejection noted above teaches the limitations cited by the applicant.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin L McHenry whose telephone number is (703) 305-9626. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G Dunn can be reached on (703) 308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

July 8, 2003

M. ALEXANDRA ELVE
PRIMARY EXAMINER